Remarks

Currently pending are claims 1-4 and 6-16. In view of the following remarks, Applicants respectfully request reconsideration by the Examiner, and advancement of the application to allowance.

Information Disclosure Statement

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, Applicants hereby submit the attached Information Disclosure Statement in conformance with 37 C.F.R. § 1.97 and § 1.98. English language abstracts, a copy of the foreign publication and an English translation of an Office Action issued by the Japanese Patent Office indicating the degree of relevance of these publications as found by the Office are provided to satisfy the requirement for a concise explanation of relevance.

The Commissioner for Patents is hereby authorized to deduct the fee of $180.00 from Huntsman Corporation Deposit Account No. 08-3442.

35 U.S.C. § 103

The Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Hoffmann et al. (US Pat. No. 4,806,450) in view of Kawase et al. (US Pat No. 5,753,362). Applicants traverse this rejection for the following reasons.

As presently claimed, claim 1 is directed to a reaction product comprising:

a) acrylic acid or methacrylic acid or a mixture of acrylic acid and methacrylic acid; and

b) a (meth)acrylic ester of substituted or unsubstituted phenol, C_1-C_8 hydroxyalkylbenzene or C_1-C_8 hydroxyalkoxybenzene and methyl(meth)acrylate in the ratio (percent by weight) of from 7.1:92.9 to 50:50 with 5-90% of the acrylic or

methacrylic acid units of component a) having reacted with a glycidylvinyl compound and where the ratio (percent by weight) of component a) to component b) is from 80:20 to 20:80.

In comparison, Hoffmann et al. teaches a photosensitive composition containing a copolymer consisting of: (i) 10-50% by weight of a hydroxyalkyl methacrylate; (ii) 8-30% by weight of acrylic and/or methacrylic acid; and (iii) 30-80% by weight of one or more alkyl acrylates, alkyl methacrylates and/or vinyl aromatics with some of the carboxyl groups of the copolymer esterified by reaction with glycidyl methacrylate.

The Examiner admits Hoffmann et al. does not teach that the copolymer can further contain a (meth)acrylic ester of substituted or unsubstituted phenol, C_1-C_8 hydroxyalkylbenzene or C_1-C_8 hydroxyalkoxyalkylbenzene and methyl(meth)acrylate in the ratio (percent by weight) of (meth)acrylic ester to methyl (meth)acrylate of 7.1:92.9 to 50:50 as presently claimed. Moreover, Applicants submit Hoffman et al. also does not teach or suggest a copolymer having a ratio (percent by weight) of component a) (acrylic acid or methacrylic acid or a mixture thereof) to component b) (methacrylic ester and methyl(meth)acrylate) of 80:20 to 20:80 as presently claimed.

To remedy the deficiencies in Hoffmann et al., the Examiner cites Kawase et al. for its teaching of copolymerizing phenol (meth)acrylates. The Examiner asserts it would have been obvious to insert the Kawase et al.'s phenol (meth)acrylate into the copolymer of Hoffmann et al. for the purpose of optimizing the glass transition temperature of Hoffmann et al.'s photosensitive composition. Applicants respectfully submit that there is no teaching or suggestion in the foregoing publications to make the combination the

Examiner proposes and arrive at the presently claimed invention nor is there any reasonable expectation that such a combination would even be successful.

As noted above, Hoffmann et al. is directed to the use of its copolymer in a photosensitive composition. Hoffman et al. neither teaches nor suggests that monomers other than those specifically taught could also be incorporated into the copolymer. The Examiner agrees, but asserts Hoffman et al. teach that its film is solid at room temperature and that one skilled in the art would know to further control the glass transition temperature of the film so that it is more easily processable. However, Kawase et al. teach copolymerizing phenol (meth)acrylate raises the glass transition temperature of the resulting polymer. *See Kawase et al.* at col. 13, lines 12-16. Thus, if one skilled in the art were intending to make the film more easily processable (i.e. less rigid, easier for polymer chains to move) one would want to lower its glass transition temperature, not increase it. Accordingly, one of ordinary skill in the art would have no apparent motivation to make the combination the Examiner asserts above or expect that such a combination would even work.

Moreover, Hoffman et al. set out to produce a copolymer which exhibits improved solubility in an alkaline solution. Hoffmann et al. emphasize copolymerizing the particular monomers at certain amounts allows the photosensitive composition to exhibit, after imagewise exposure, good developability and little sensitivity to washout with aqueous alkaline developers. If one where to further copolymerize Kawase et al.'s phenol (meth)acrylate into Hoffman et al.'s copolymer, one would expect its solubility in alkaline solution to decrease since the relative amount of groups which could be deprotonated (i.e. methacrylic acid groups) in the resulting copolymer would be less.

Thus, when reading each publication as a whole, one of ordinary skill in the art would have no apparent motivation to make the combination the Examiner asserts above.

Nevertheless, Applicants have surprisingly found when the claimed reaction product is used in a photopolymerizable composition, the photopolymerizable composition exhibits excellent hardness after drying in combination with high photosensitivity. In particular, Applicants found it surprising that the surface hardness after drying is significantly increased when the weight ratio of the two components of claim element 1b) ranges between 7.1:92.9 and 50:50 (see Table 8 of the present application where formulations A, C and D which comprise methyl(meth)acrylate are compared to formulation B which does not comprise methyl(meth)acrylate). Neither publication cited above teaches or suggests such a result.

Conclusion

Applicants respectfully submit that the application is in condition for allowance, and respectfully requests issuance of a Notice of Allowance directed towards the pending claims.

Should any fee be due in connection with the filing of this document, the Commissioner for Patents is hereby authorized to deduct said fee from Huntsman Corporation Deposit Account No. 08-3442.

Respectfully Submitted,

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